

10/15/98
518 U.S. PTO
09/17/2665

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518 U.S. PTO
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Date: October 15, 1998
Docket No.: 2091-0169P-SP

Assistant Commissioner for Patents
Box PATENT APPLICATION
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s): ITO, Wataru

For: IMAGE CONVERSION SYSTEM

Enclosed are:

X A specification consisting of 11 pages

X 1 sheet(s) of Formal drawings

X An assignment of the invention

 Certified copy of Priority Document(s)

X Executed Declaration X Original Photocopy

 A verified statement to establish small entity status under 37
CFR 1.9 and 37 CFR 1.27

 Preliminary Amendment

 Information Disclosure Statement, PTO-1449 and reference(s)

___ Other _____

The filing fee has been calculated as shown below:

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TOTAL CLAIMS	1 - 20 =	0	x22 =\$ 0.00	or	x 11 = \$ 0.00
INDEPENDENT	1 - 3 =	0	x82 =\$ 0.00	or	x 41 = \$ 0.00
MULTIPLE DEPENDENT CLAIM PRESENTED <u>no</u>			+270 = \$ 0.00	or	+135 = \$ 0.00
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Respectfully submitted,

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IMAGE CONVERSION SYSTEM

BACKGROUND OF THE INVENTION

Field of the Invention

5 This invention relates to an image conversion system for converting the format of digital image signal in digital photographic service.

Description of the Related Art

10 As personal computers, internets and the like come to be in wide use, there is an increasing trend toward storing a picture as a digital image signal for later use.

15 In the case of a picture taken by use of photographic film, in order to obtain a digital image representing the picture, the image on the photographic film is read out and an analog image signal obtained is digitized. Recently laboratories and the like provide service to read out images on photographic film of customers, recording digital image signals representing the images on media such as a CD-R and dispense the media to the customers. The customer can edit and/or print the digital images by loading the media in a personal computer.

20 In such a case, the digital image signal which the laboratory dispenses to the customer is generally made with the intention of making prints from the digital image signal later at the laboratory. Accordingly, such an image signal is generally recorded in an image format at a

25

relatively high resolution suitable for printing such as PhotoCD format or FlashPix format proposed by Eastman Kodak.

To the contrast, in the case of a digital camera, a picture is recorded in a memory as a digital image signal upon taking the picture and there is no necessity of digitizing the image. The user can directly enter the digital image signal recorded in the memory into a personal computer or directly transfer the digital image signal to a digital printer.

The format of the digital image signal recorded in the memory of the digital camera is generally different from the aforesaid PhotoCD or the like since in the case of the digital camera, it is required to store the largest possible number of image signals at a high quality in a memory having a limited capacity. As such a format for a digital camera, there has been known, for instance, Exif format proposed by "Shadan-houjin Nihon Denshi Kougyou Shinkou Kyokai". Further there have been known digital cameras in which other nonstandard formats are employed in order to realize a higher image quality and a high compression rate.

There has been known a service to make a seal print by editing and modifying a digital image signal. Such a service is available for both a digital image signal obtained by reading an image on photographic film and a

digital image signal taken by a digital camera.

However for the provider of such a service, the digital image signal taken by a digital camera is advantageous over a digital image signal obtained by reading a picture on photographic camera since the former digital image signal does not require, for instance, an image scanner, which less cost the provider. Further when providing a service installing a seal print machine or the like, the cost of the machine can be greatly reduced by limiting the images handled by the machine only to those taken by digital cameras. It is expected that various services and/or systems only for images taken by digital cameras will spread with the spread of digital cameras.

On the other hand, photographic cameras using film is advantageous over digital cameras in that the image quality is higher and the camera is more economical. Especially digital cameras cannot be equal to a so-called film with lens in convenience. Accordingly, it cannot be considered that photographic cameras using film will go out of use as digital cameras spread. That is, the service provider must keep providing the same services also for images recorded on photographic film while reducing the cost by introduction of systems only for images taken by digital cameras.

However in the conventional services and/or systems, pictures recorded on photographic camera cannot

format or the like.

Further the recording medium which can be loaded in the digital camera may be, for instance, a smart medium (SSFDC), a PCMCIA card, a compact flash memory or the like.

5 It may be other various media which have been known or will be developed in the future.

By loading developed film in the image conversion system of the present invention, a digital image signal representing an image on the film which is recorded in a format used in a digital camera on a recording medium which can be loaded in a digital camera. Accordingly, pictures recorded on photographic camera can enjoy services only for digital cameras without use of a personal computer.

10 This means that even if the service providers limit a part of their services or the objects of handling of their systems to digital cameras only, the customers does not undergo great inconvenience and the providers can reasonably reduce the cost of service by limiting the object of handling to digital cameras only.

20 Further customers who do not possess a personal computer but possess a digital camera and an ordinary camera can manage both image signals obtained by use of the digital camera and the ordinary camera on the same medium by use of the image conversion system of the present invention.

BRIEF DESCRIPTION OF THE DRAWING

Figure 1 is a view showing an image conversion system in accordance with an embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

5 In Figure 1, an image conversion system 1 in accordance with an embodiment of the present invention comprises a film scanner 4 which reads out an image on developed photographic film 3 and generates a digital image signal representing the image, an image processing means 7
10 which carries out various image processings on the digital image signal generated by the film scanner 4, an image signal recording means 10 which records the digital image signal processed by the image processing means 7 on a recording medium 2 for digital cameras and a medium storage
15 portion 11 in which virgin recording media 2 are stored.

The image conversion system 1 may be, for instance, in the form of a system comprising a personal computer loaded with exclusive image processing program, a film scanner and a peripheral devices such as a medium drive or
20 in the form of an image conversion unit in which all the functions are incorporated in one housing.

The film scanner 4 is provided with a film set portion. The film set portion may be in such a form that the film is set to the film set portion by itself or the
25 film cassette is set to the film set portion and the film is automatically drawn out from the cassette. Further the

film set portion may be in such a form that a film with lens is set to the film set portion and the housing of the film with lens is automatically disassembled and the film is drawn out.

5 In any cases, a reading portion 5 of the film scanner 4 reads out the image on the film 3 and the analog image signal thus obtained is digitized into a digital image signal by an A/D convertor 6 of the film scanner 4. At this time, the digital image signal is data expressed by
10 a color space of the film scanner.

Then the digital image signal is transformed into a color space of an image taking system of a digital camera by color transformation means 8 of the image processing means 7, whereby an 8-bit digital image signal where each
15 of R, G and B are expressed in 8 bits is obtained. Further the 8-bit digital image signal is converted into a format for digital cameras, e.g. Exif, by a format conversion means 9 of the image processing means 7.

The digital image signal in the converted format is
20 recorded on a recording medium 2 for digital cameras by the image signal recording means 10. When the user sets a recording medium together with the film 3, the image signal recording means 10 records the digital image on the recording medium set by the user, and when the user sets
25 only the film 3, the image signal recording means 10 records the digital image on a recording medium 2 of a

designated kind taken out from the medium storage portion
11. Then the recording medium 2 on which the digital image
signal is recorded is dispensed to the user.

Various formats for digital cameras other than Exif
are proposed by various digital camera makers. Accordingly
it is preferred that the image conversion system 1 be
arranged so that the user can select a format from a
plurality of formats, for instance, displayed on a monitor.
In this case, the format conversion means 9 converts the
digital image signal into the format selected by the user
which is input into the format conversion means 9 by a
known means such as a keyboard.

Similarly it is preferred that the image conversion
means 1 be arranged so that the recording medium 2 can be
selected from a plurality of kinds of recording media such
as a smart medium (SSFDC), a PCMCIA card, a compact flash
memory and the like. In this case, a plurality of kinds of
recording media are stored in the medium storage portion 11
and a recording medium of the kind selected by the user is
taken out from the storage portion 11 and the digital image
signal is recorded on the recording medium.

On the recording medium 2 dispensed from the image
conversion system 1, the digital image signal is recorded
in the same form as that obtained by taking a picture by a
digital camera. Accordingly the recording medium 2 can be
handled by a system such as a seal print machine for only

images taken by a digital camera, e.g., a system only for smart media.

When a memory card on a digital camera is set to the image conversion system 1 of this embodiment together with a film with lens, digital image signals representing pictures taken by the film with lens are recorded on the memory card. This permits all the pictures taken to be recorded on one memory card irrespective of photographing means and facilitates management of images.

Thus the image conversion system of the present invention makes it feasible to provide the same services for all the users irrespective of whether they possess a digital camera or whether they possess a personal computer.

What is claimed is;

1. An image conversion system comprising

a digital image generation means which reads out an
image on photographic film and generates a digital image
signal representing the image,

a format conversion means which converts the format
of the digital image signal into a predetermined format
used in a digital camera, and

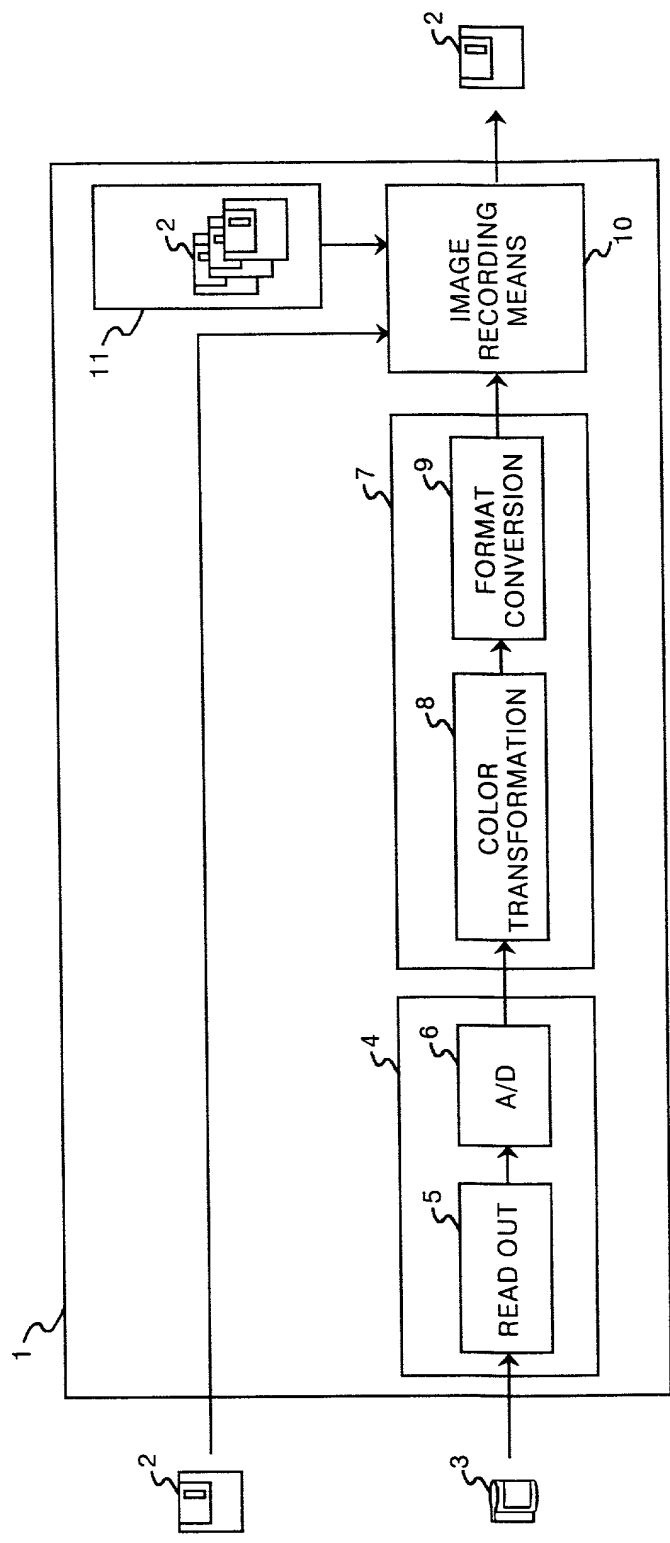
an image signal recording means which records the
digital image signal in the predetermined format on a
recording medium which can be loaded in the digital camera.

ABSTRACT OF THE DISCLOSURE

In an image conversion system, a film scanner reads out an image on photographic film and generates a digital image signal representing the image. The format of the digital image signal is converted into a predetermined format used in a digital camera, and the digital image signal in the predetermined format is recorded on a recording medium which can be loaded in the digital camera.

5

FIG. 1



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As a below named inventor, I hereby declare that:

Wataru Ito

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c/o Fuji Photo Film Co., Ltd.
798 Miyanodai, Kaisei-machi,
Ashigarakami-gun, Kanagawa-ken, Japan
I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled" IMAGE CONVERSION SYSTEM "

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Prior Foreign Application(s)

外国での先行出願
(patent) 281807/1997

(Number)
(番号)

Japan

(Country)
(国名)

15/10/1997

(Day/Month/Year Filed)
(出願年月日)

Priority Not Claimed

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(Status: Patented, Pending, Abandoned)
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